

Exercise 9—Logarithmic Rating Extension

- Plot a rating defined by the measurements shown in the following table on the graph paper on the next page. Use an offset of zero. Assume the stream reached a peak stage of 51.4 feet on April 8, 1938 then do the following:
 1. Estimate the peak discharge associated with that peak.
 2. Now determine a more appropriate scale offset for the rating and draw that rating on the same piece of graph paper. Note: You will have to change the gage-height scale.
 3. Use this new rating to estimate the discharge associated with the 51.4 foot stage.
 4. Did your answers differ?
 5. If so, why?
 6. Which answer would you supply to your local cooperator?
 7. **Which rule of thumb is violated in working the exercise**
 8. **What assumption has to be made when extending the rating used for the exercise?**

Discharge Measurements Coosa River	
Gage Height	Discharge
14	9540
16	17200
18	26500
21	42500
26	74500

If you have time do the same exercise using BARC. With BARC you can see the difference in the peak flow estimate derived from extending ratings developed using the two different offsets. This can be done by putting 51.4 feet into the gage height cell associated with the “Calculate a GH or Q for the Rating with the Show Button Selected” box and selecting different ratings using the “Show” button. You should see significantly different discharges corresponding to the 51.4 foot gage height.

